

## Appendix F

### Statistical Correlation Coefficients Among Selected Indicators

**Table F-1.** Pearson Correlation Factors Among Indicated Indicators. Values range from +1 (high linear relationship between data sets) through zero (complete absence of a relationship) to -1 (high inverse linear relationship). Only values in blue are statistically significant, with greater than 95% certainty.

Surface Chlorophyll versus													
	Water Depth	Bottom Salinity	Water Stratif	Secchi Depth	Chl a	Surface Diss Oxy	Bottom Tot N	Surface Tot P	TN/TP Ratio	Sediment Grainsize	Sediment TOC	Sed Metals ERL/ERM	Sed Org ERL/ERM
Delaware Estuary	<b>-0.48</b>	0.07	-0.12	-0.10	N/A	0.41	0.24	0.32	-0.09	0.20	<b>0.35</b>	0.15	0.20
Schuylkill River	0.61	N/A	-0.17	0.19	N/A	<b>-0.86</b>	-0.54	<b>-0.91</b>	<b>0.90</b>	0.71	<b>-0.74</b>	0.53	-0.58
Salem River	<b>-0.79</b>	<b>-0.64</b>	-0.16	<b>-0.72</b>	N/A	<b>-0.71</b>	-0.02	<b>0.90</b>	<b>-0.86</b>	0.40	<b>0.71</b>	0.55	0.51
Chesapeake Bay	<b>-0.33</b>	<b>-0.59</b>	<b>-0.35</b>	<b>-0.49</b>	N/A	<b>0.30</b>	<b>0.56</b>	<b>0.51</b>	-0.09	-0.14	0.43	<b>0.48</b>	<b>0.63</b>
Severn River	-0.09	0.10	-0.09	<b>-0.51</b>	N/A	0.20	<b>0.66</b>	<b>0.47</b>	-0.29	0.15	-0.12	0.12	0.03
South River	0.09	-0.39	0.09	<b>-0.47</b>	N/A	0.02	<b>0.88</b>	<b>0.57</b>	-0.33	0.19	0.20	0.24	0.38
Eastern Bay	0.55	0.58	0.54	-0.02	N/A	-0.61	0.53	-0.06	0.02	0.62	0.44	<b>0.73</b>	0.64
Pocomoke River	<b>0.90</b>	<b>1.00</b>	N/A	-0.87	N/A	0.32	0.58	0.67	0.16	<b>0.98</b>	0.78	<b>1.00</b>	<b>1.00</b>
St. Jerome Creek	-0.23	<b>-0.65</b>	N/A	<b>-0.78</b>	N/A	<b>-0.67</b>	<b>0.98</b>	<b>0.93</b>	-0.38	0.54	<b>0.64</b>	0.55	N/A
Pamunkey River	0.15	<b>0.75</b>	0.58	<b>0.66</b>	N/A	0.16	0.23	0.53	-0.60	<b>0.62</b>	0.55	0.59	0.16
Mobjack Bay	-0.62	<b>-0.72</b>	-0.57	-0.43	N/A	0.24	0.56	0.41	-0.03	-0.60	-0.56	-0.48	-0.46
Cherrystone Inlet	-0.26	-0.29	0.49	<b>-0.69</b>	N/A	-0.47	0.06	0.10	-0.12	<b>0.64</b>	0.59	0.53	0.10
Coastal Bays	-0.19	<b>-0.78</b>	0.10	<b>-0.47</b>	N/A	0.34	<b>0.65</b>	<b>0.81</b>	0.48	<b>0.43</b>	<b>0.37</b>	0.19	0.11
Sinepuxent Bay	0.38	<b>-0.97</b>	N/A	-0.45	N/A	0.46	<b>0.94</b>	0.77	0.55	0.38	0.30	N/A	N/A
VA Coastal Bays	-0.09	-0.30	-0.19	-0.07	N/A	-0.46	0.50	0.41	0.14	-0.08	0.03	-0.45	<b>0.64</b>
Albemarle Pamlico	-0.20	-0.03	0.23	<b>-0.61</b>	N/A	0.25	<b>0.71</b>	0.03	<b>0.53</b>	<b>0.39</b>	0.29	-0.01	0.17

N/A: data not available

Bottom Dissolved Oxygen versus													
	Water Depth	Bottom Salinity	Water Stratif	Secchi Depth	Chl a	Surface Diss Oxy	Bottom Tot N	Surface Tot P	TN/TP Ratio	Sediment Grainsize	Sediment TOC	Sed Metals ERL/ERM	Sed Org ERL/ERM
Delaware Estuary	0.03	<b>0.67</b>	0.16	-0.02	0.41	N/A	<b>-0.60</b>	-0.30	<b>-0.53</b>	-0.07	-0.14	-0.28	<b>-0.46</b>
Schuylkill River	-0.32	N/A	0.27	-0.15	<b>-0.86</b>	N/A	0.03	0.65	<b>-0.74</b>	<b>-0.80</b>	<b>0.85</b>	-0.52	<b>0.78</b>
Salem River	0.46	0.14	0.17	0.46	<b>-0.71</b>	N/A	-0.05	-0.56	0.59	-0.15	-0.39	-0.22	<b>-0.90</b>
Chesapeake Bay	<b>-0.63</b>	<b>-0.35</b>	<b>-0.59</b>	<b>-0.26</b>	<b>0.30</b>	N/A	<b>0.35</b>	<b>0.32</b>	-0.08	<b>-0.23</b>	-0.04	<b>-0.28</b>	-0.12
Severn River	<b>-0.87</b>	<b>-0.45</b>	<b>-0.74</b>	<b>-0.47</b>	0.20	N/A	0.30	-0.02	0.21	<b>-0.73</b>	<b>-0.73</b>	<b>-0.81</b>	<b>-0.55</b>
South River	<b>-0.44</b>	0.01	<b>-0.63</b>	-0.14	0.02	N/A	0.14	-0.37	<b>0.68</b>	<b>-0.43</b>	<b>-0.58</b>	<b>-0.61</b>	<b>-0.47</b>
Eastern Bay	<b>-0.95</b>	<b>-0.92</b>	-0.41	-0.61	N/A	<b>-0.65</b>	0.02	-0.48	<b>-0.84</b>	<b>-0.86</b>	<b>-0.89</b>	<b>-0.78</b>	N/A
Pocomoke River	0.39	0.34	N/A	-0.27	0.32	N/A	-0.01	0.55	-0.67	0.27	0.06	0.34	0.34
St. Jerome Creek	0.15	<b>0.69</b>	N/A	0.40	<b>-0.67</b>	N/A	-0.58	0.44	-0.12	-0.31	-0.18	N/A	N/A
Pamunkey River	-0.19	0.02	-0.23	0.22	0.16	N/A	0.10	-0.26	0.62	0.47	0.51	0.31	-0.31
Mobjack Bay	<b>-0.76</b>	-0.36	<b>-0.70</b>	-0.39	0.24	N/A	0.36	0.32	-0.09	<b>-0.78</b>	<b>-0.80</b>	<b>-0.78</b>	-0.27
Cherrystone Inlet	0.04	0.44	-0.49	0.60	-0.47	N/A	<b>-0.78</b>	-0.52	-0.05	-0.54	-0.43	-0.40	-0.24
Coastal Bays	-0.12	<b>-0.40</b>	0.01	-0.08	0.34	N/A	0.24	0.26	0.32	0.02	0.20	0.23	0.29
Sinepuxent Bay	-0.30	-0.35	N/A	0.33	0.46	N/A	0.40	-0.20	0.82	-0.17	-0.21	N/A	N/A
VA Coastal Bays	-0.22	-0.36	-0.19	-0.22	-0.46	N/A	0.40	0.40	0.07	0.29	0.26	<b>0.69</b>	-0.35
Albemarle Pamlico	<b>-0.42</b>	0.09	<b>-0.26</b>	-0.16	0.25	N/A	0.02	-0.05	0.07	-0.07	-0.19	-0.19	0.01

N/A: data not available

**Table F-1 (cont'd).** Pearson Correlation Factors Among Indicated Indicators. Values range from +1 (high linear relationship between data sets) through zero (complete absence of a relationship) to -1 (high inverse linear relationship). Only values in blue are statistically significant, with greater than 95% certainty.

	Total Organic Carbon versus													
	Water Depth	Bottom Salinity	Water Stratif	Seccchi Depth	Chl a	Surface Diss Oxy	Bottom Tot N	Surface Tot P	TN/TP Ratio	Sediment Grainsize	Sediment TOC	Sediment ERL/ERM	Sed Metals ERL/ERM	Sed Org ERL/ERM
Delaware Estuary	<b>-0.43</b>	<b>-0.44</b>	-0.22	<b>-0.26</b>	<b>0.35</b>	-0.14	<b>0.44</b>	<b>0.53</b>	0.07	<b>0.66</b>	N/A	<b>0.80</b>	<b>0.60</b>	
Schuylkill River	<b>-0.80</b>	N/A	0.53	-0.01	<b>-0.74</b>	<b>0.85</b>	0.24	0.57	-0.60	<b>-0.99</b>	N/A	<b>-0.71</b>	0.36	
Salem River	<b>-0.83</b>	-0.54	-0.32	<b>-0.86</b>	<b>0.71</b>	-0.39	0.19	<b>0.70</b>	<b>-0.72</b>	0.91	N/A	<b>0.89</b>	0.35	
Chesapeake Bay	-0.04	<b>-0.50</b>	0.12	0.10	0.43	-0.04	0.41	0.30	-0.18	0.41	N/A	0.47	<b>0.51</b>	
Severn River	<b>0.69</b>	<b>0.45</b>	<b>0.63</b>	0.15	-0.12	<b>-0.73</b>	-0.28	0.05	-0.30	0.90	N/A	0.90	<b>0.48</b>	
South River	<b>0.64</b>	0.03	<b>0.55</b>	-0.06	0.20	<b>-0.58</b>	0.22	<b>0.43</b>	-0.38	0.90	N/A	0.93	<b>0.68</b>	
Eastern Bay	<b>0.91</b>	<b>0.81</b>	<b>0.89</b>	0.30	0.44	<b>-0.86</b>	0.42	-0.09	0.26	0.97	N/A	<b>0.79</b>	<b>0.69</b>	
Pocomoke River	0.76	0.71	N/A	<b>-0.94</b>	0.78	0.06	0.09	0.09	0.01	<b>0.88</b>	N/A	0.73	0.73	
St. Jerome Creek	0.51	<b>-0.65</b>	N/A	<b>-0.86</b>	<b>0.64</b>	-0.31	<b>0.68</b>	<b>0.75</b>	-0.59	0.97	N/A	<b>0.88</b>	N/A	
Pamunkey River	-0.35	0.20	0.06	-0.37	0.55	0.51	0.22	0.18	0.16	0.91	N/A	0.83	0.25	
Mobjack Bay	<b>0.94</b>	<b>0.71</b>	<b>0.91</b>	0.14	-0.56	<b>-0.80</b>	-0.45	-0.63	0.41	0.97	N/A	0.98	0.40	
Cherrystone Inlet	-0.11	-0.37	0.37	<b>-0.77</b>	0.59	-0.43	0.32	0.28	-0.08	0.92	N/A	<b>0.87</b>	0.46	
Coastal Bays	-0.28	<b>-0.61</b>	0.13	-0.29	<b>0.37</b>	0.20	<b>0.59</b>	<b>0.54</b>	0.26	0.57	N/A	0.15	<b>0.74</b>	
Sinepuxent Bay	0.12	-0.37	N/A	-0.29	0.30	-0.21	0.20	0.40	-0.04	0.99	N/A	N/A	N/A	
VA Coastal Bays	-0.62	-0.17	0.21	<b>-0.65</b>	0.03	0.26	0.30	0.45	-0.17	0.92	N/A	<b>0.87</b>	0.24	
Albermarle Pamlico	0.24	<b>-0.27</b>	-0.05	-0.12	0.29	-0.19	0.02	-0.18	0.07	<b>0.86</b>	N/A	<b>0.67</b>	<b>0.41</b>	

N/A: data not available

	EMAP VA Province Benthic Index versus													
	Water Depth	Bottom Salinity	Water Stratif	Seccchi Depth	Chl a	Surface Diss Oxy	Bottom Tot N	Surface Tot P	TN/TP Ratio	Sediment Grainsize	Sediment TOC	Sediment ERL/ERM	Sed Metals ERL/ERM	Sed Org ERL/ERM
Delaware Estuary	-0.06	0.00	0.09	-0.16	<b>-0.53</b>	0.01	-0.09	-0.02	-0.05	-0.07	-0.19	<b>-0.26</b>	<b>-0.34</b>	
Schuylkill River	0.41	N/A	-0.20	0.54	-0.09	0.16	-0.53	0.08	-0.12	0.38	-0.41	0.34	-0.62	
Salem River	<b>0.65</b>	0.09	0.21	0.58	<b>-0.71</b>	<b>0.92</b>	-0.17	-0.55	0.61	-0.42	-0.60	-0.50	<b>-0.88</b>	
Chesapeake Bay	-0.12	<b>-0.15</b>	<b>-0.21</b>	-0.03	-0.24	<b>0.22</b>	-0.11	-0.07	0.10	<b>-0.44</b>	<b>-0.20</b>	<b>-0.41</b>	-0.23	
Severn River	<b>-0.68</b>	<b>-0.46</b>	<b>-0.46</b>	-0.32	0.01	<b>0.72</b>	0.06	0.02	0.10	<b>-0.68</b>	<b>-0.68</b>	<b>-0.69</b>	-0.62	
South River	<b>-0.51</b>	-0.22	-0.33	-0.07	0.04	<b>0.42</b>	-0.03	-0.22	0.21	<b>-0.77</b>	<b>-0.78</b>	<b>-0.63</b>	-0.33	
Eastern Bay	<b>-0.91</b>	<b>-0.81</b>	<b>-0.88</b>	-0.22	-0.52	<b>0.80</b>	-0.39	0.29	-0.38	<b>-0.89</b>	<b>-0.82</b>	<b>-0.75</b>	N/A	
Pocomoke River	-0.86	<b>-0.98</b>	N/A	0.70	<b>-0.96</b>	-0.37	-0.67	-0.85	-0.13	<b>-0.88</b>	-0.57	<b>-0.97</b>	<b>-0.97</b>	
St. Jerome Creek	-0.35	<b>0.79</b>	N/A	<b>0.85</b>	<b>-0.67</b>	0.56	<b>-0.71</b>	<b>-0.85</b>	<b>0.84</b>	<b>-0.77</b>	<b>-0.84</b>	N/A	N/A	
Pamunkey River	<b>-0.61</b>	-0.09	-0.17	0.43	-0.37	0.20	-0.08	-0.28	0.35	0.02	-0.05	-0.01	0.07	
Mobjack Bay	<b>-0.78</b>	<b>-0.68</b>	<b>-0.77</b>	0.03	0.51	0.55	0.30	0.61	-0.50	<b>-0.90</b>	<b>-0.84</b>	<b>-0.86</b>	-0.42	
Cherrystone Inlet	0.23	0.60	-0.46	<b>0.83</b>	-0.47	0.43	-0.34	-0.47	0.29	<b>-0.95</b>	<b>-0.92</b>	<b>-0.89</b>	-0.53	
Coastal Bays	0.09	<b>0.41</b>	0.08	0.11	-0.12	-0.34	-0.36	-0.32	0.08	<b>-0.82</b>	-0.20	-0.19	<b>-0.70</b>	
Sinepuxent Bay	0.75	0.26	N/A	0.61	-0.07	-0.13	0.27	0.04	0.44	-0.09	0.02	N/A	N/A	
VA Coastal Bays	<b>0.86</b>	-0.01	0.31	-0.50	0.03	0.11	0.36	0.53	-0.23	0.47	0.54	0.26	0.26	
Albermarle Pamlico	-0.18	0.13	0.08	0.11	-0.22	-0.13	0.07	-0.01	-0.01	<b>-0.33</b>	<b>-0.33</b>	<b>-0.37</b>	-0.05	

N/A: data not available

